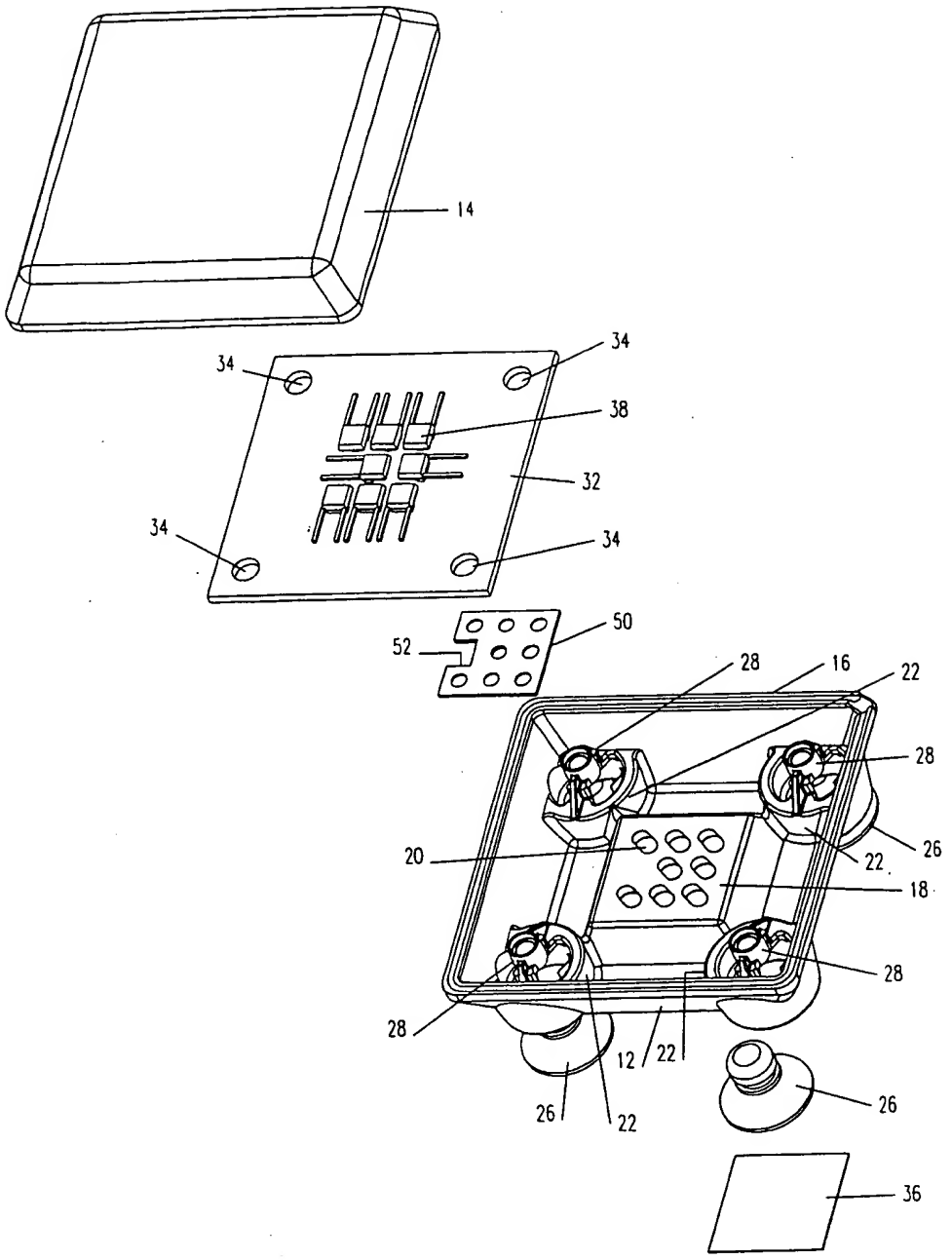
14
34
34
38
32
34
34
50
52
28
16
22
28
26
20
22
18
28
28
12
22
26
22
26
36

FIG. 1

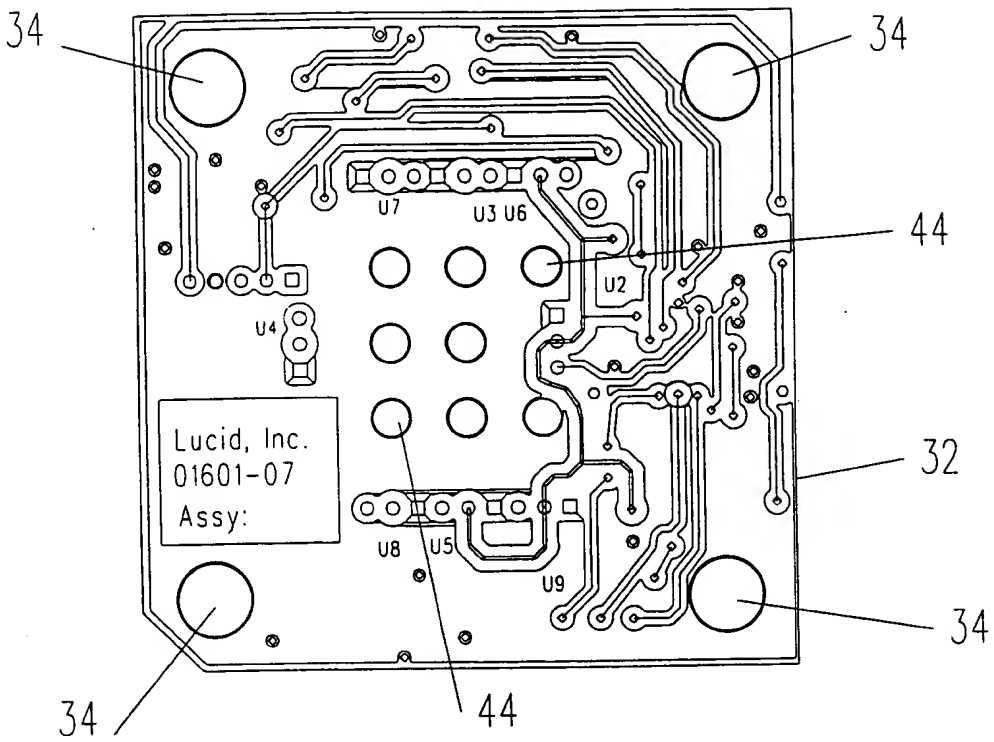

FIG. 1A

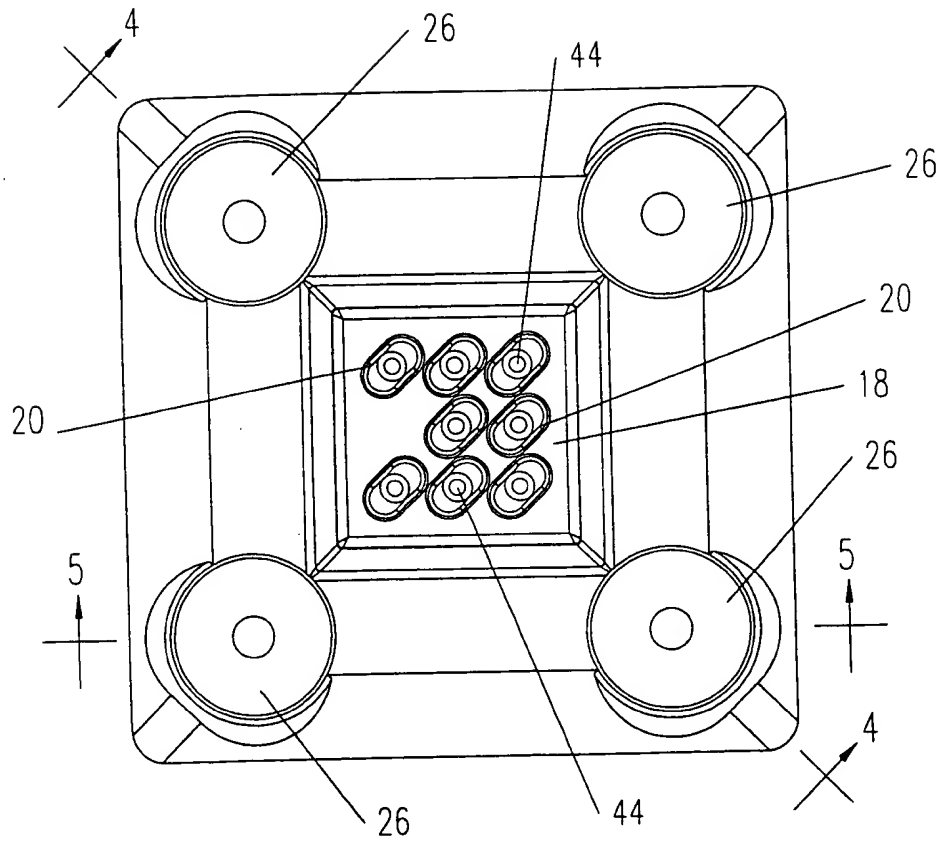

FIG. 2

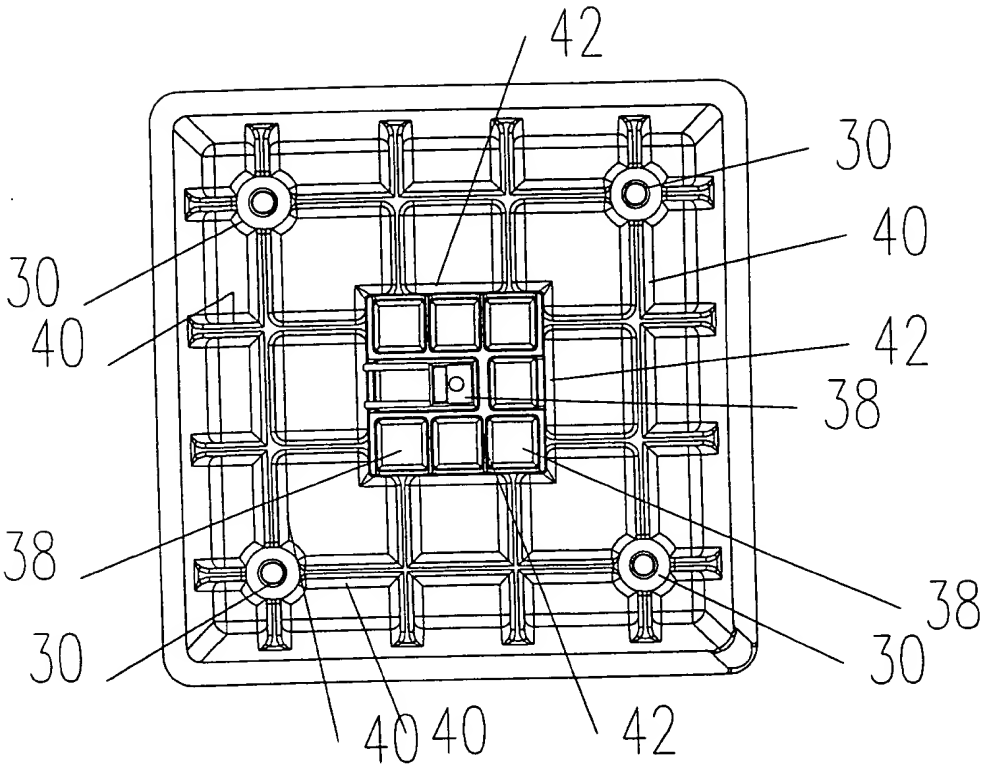

FIG. 3

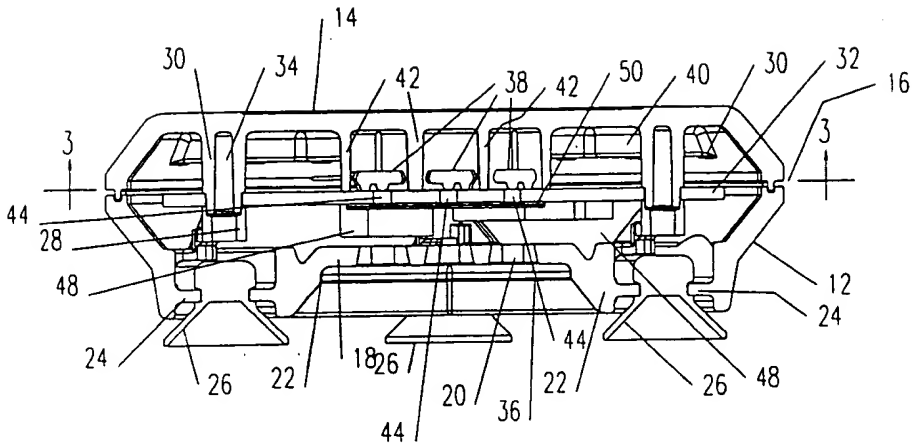
14
30
34
42
38
42
50
40
30
32
16
3
3
44
28
48
12
24
24
26
22
18
26
20
36
44
22
44
26
48

FIG. 4

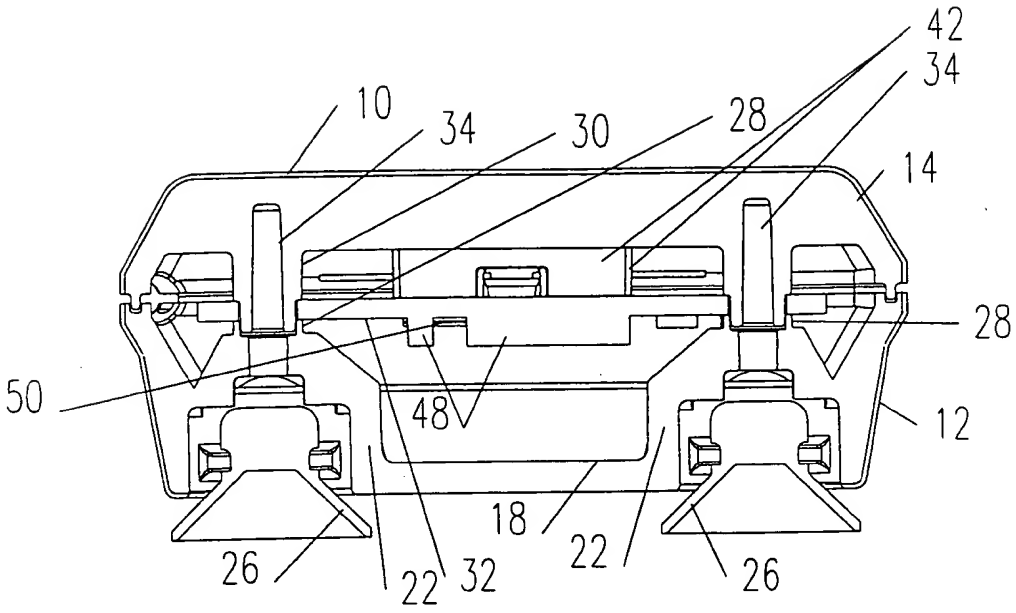

FIG. 5

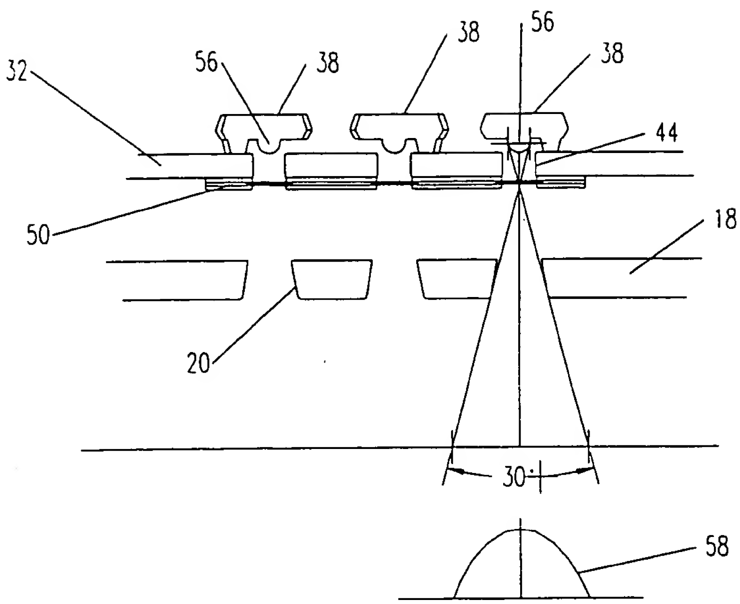

FIG. 6

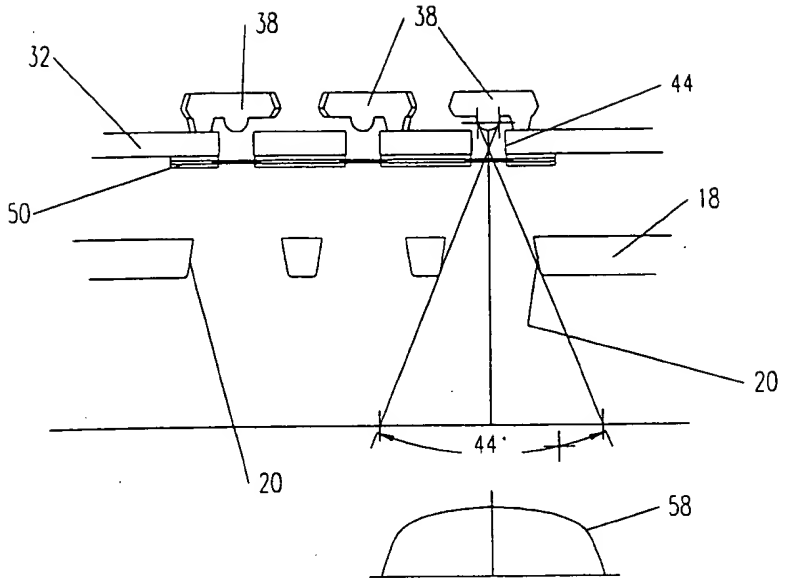

FIG. 7

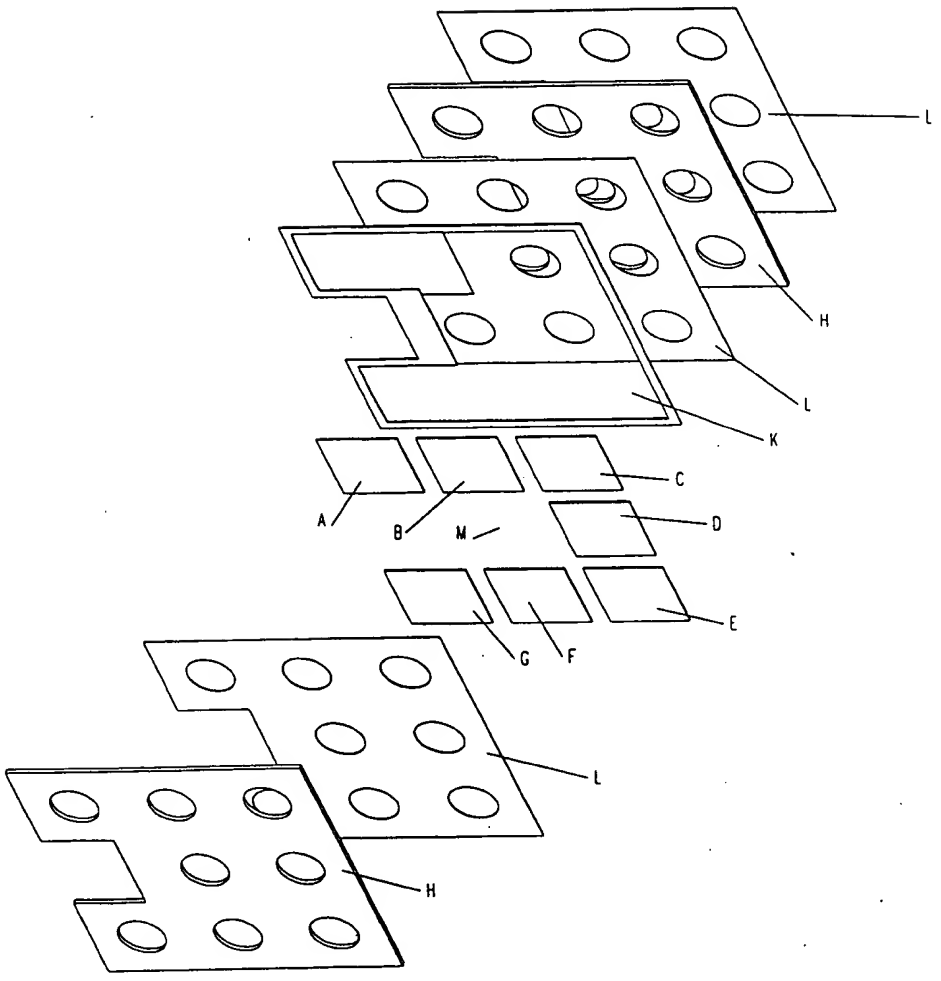

FIG. 8

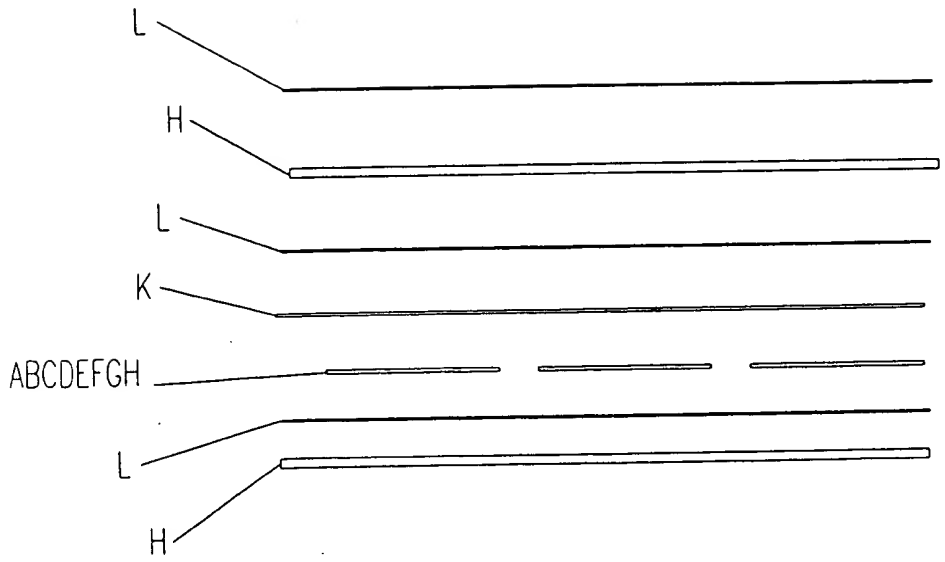

FIG. 9

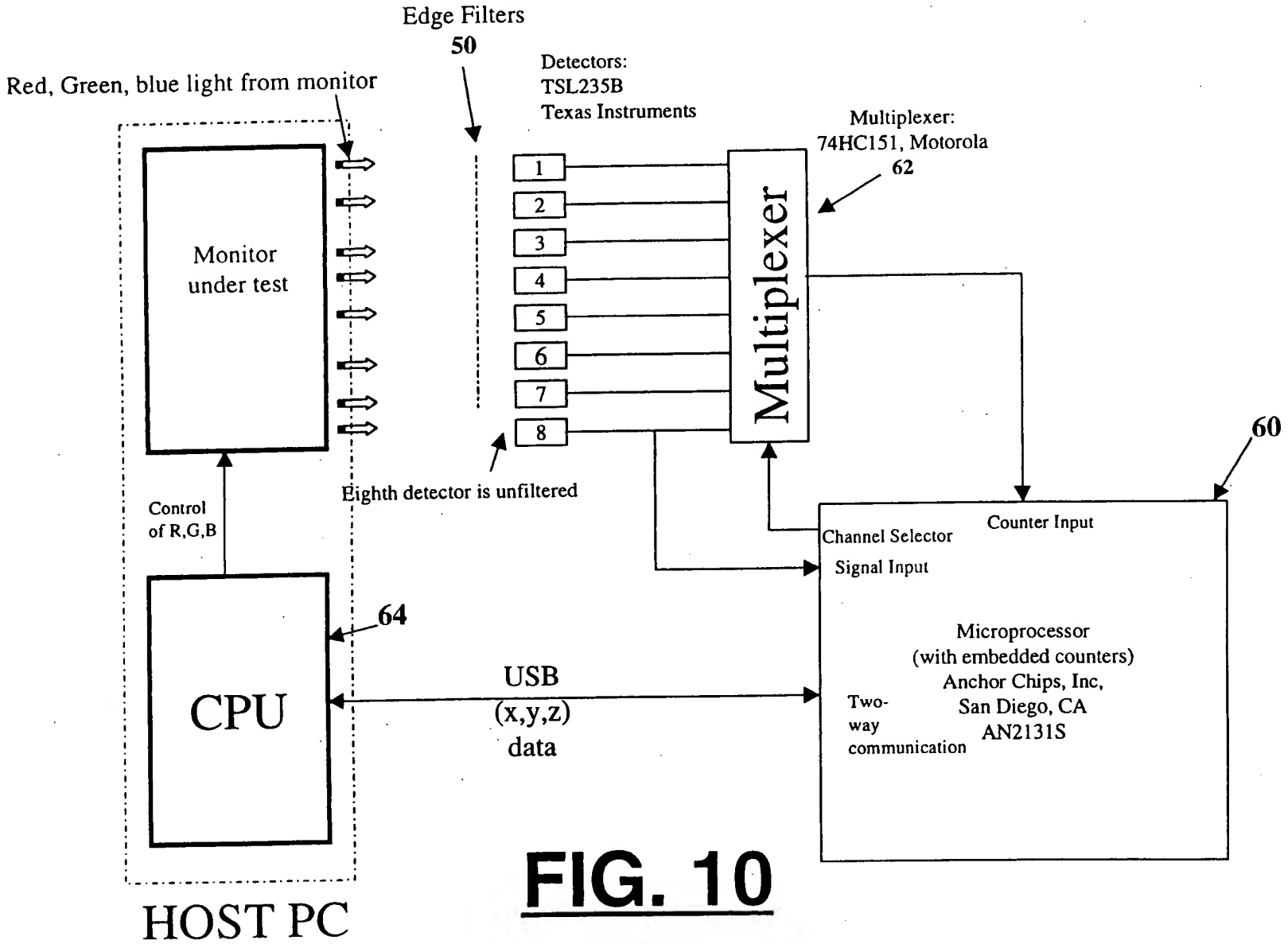
Edge Filters
50
Red, Green, blue light from monitor
Detectors:
TSL235B
Texas Instruments
Multiplexer:
74HC151, Motorola
62
Monitor
under test
1
2
3
4
5
6
7
8
Multiplexer
60
Eighth detector is unfiltered
Control
of R,G,B
Counter Input
Channel Selector
Signal Input
64
Microprocessor
(with embedded counters)
Anchor Chips, Inc,
San Diego, CA
AN2131S
CPU
USB
(x,y,z)
data
Two-
way
communication
HOST PC

FIG. 10

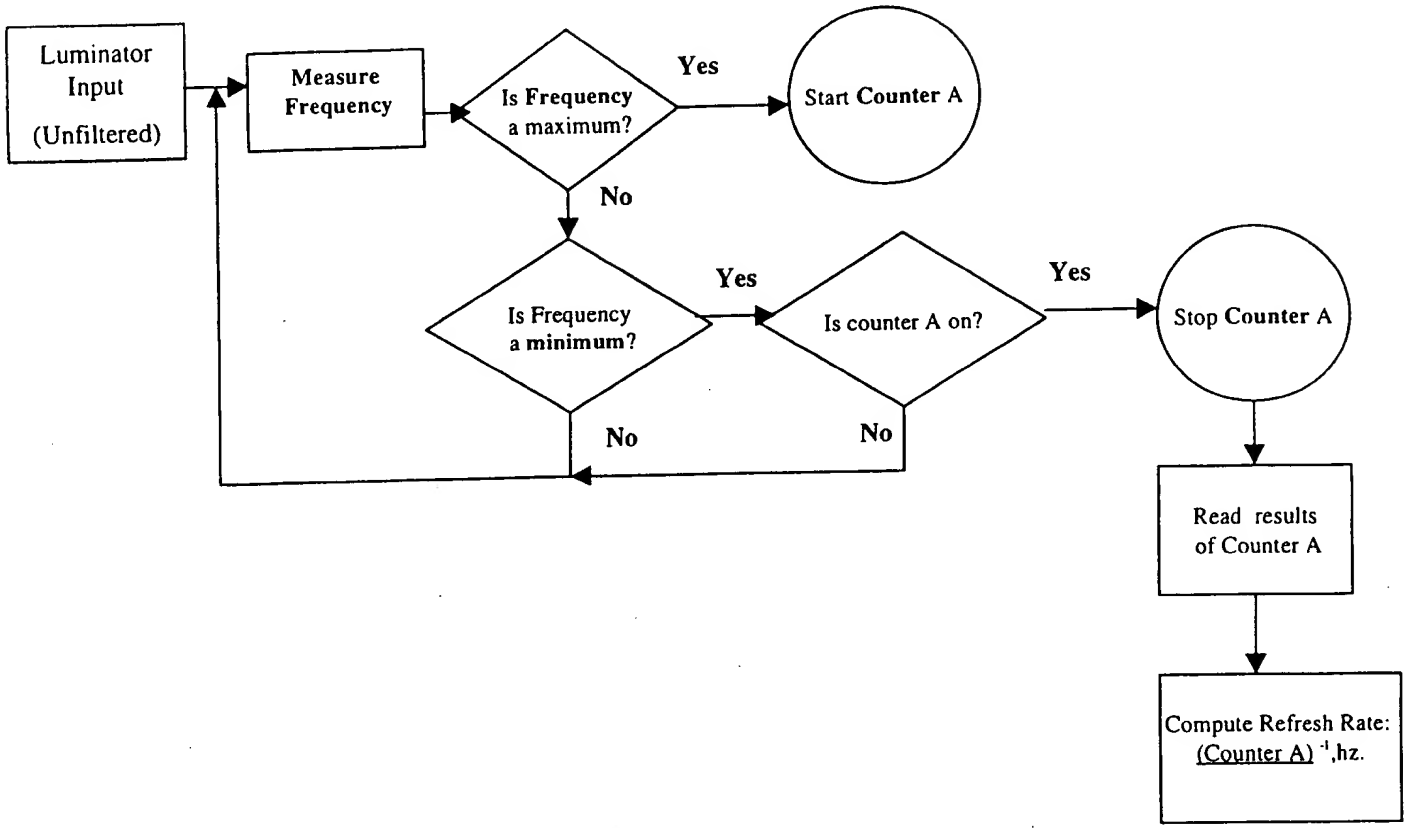
Luminator Input (Unfiltered)
Measure Frequency
Is Frequency a maximum?
Yes
Start Counter A
No
Is Frequency a minimum?
Yes
Is counter A on?
Yes
Stop Counter A
No
No
Read results of Counter A
Compute Refresh Rate: (Counter A) -1,hz.

FIG. 11

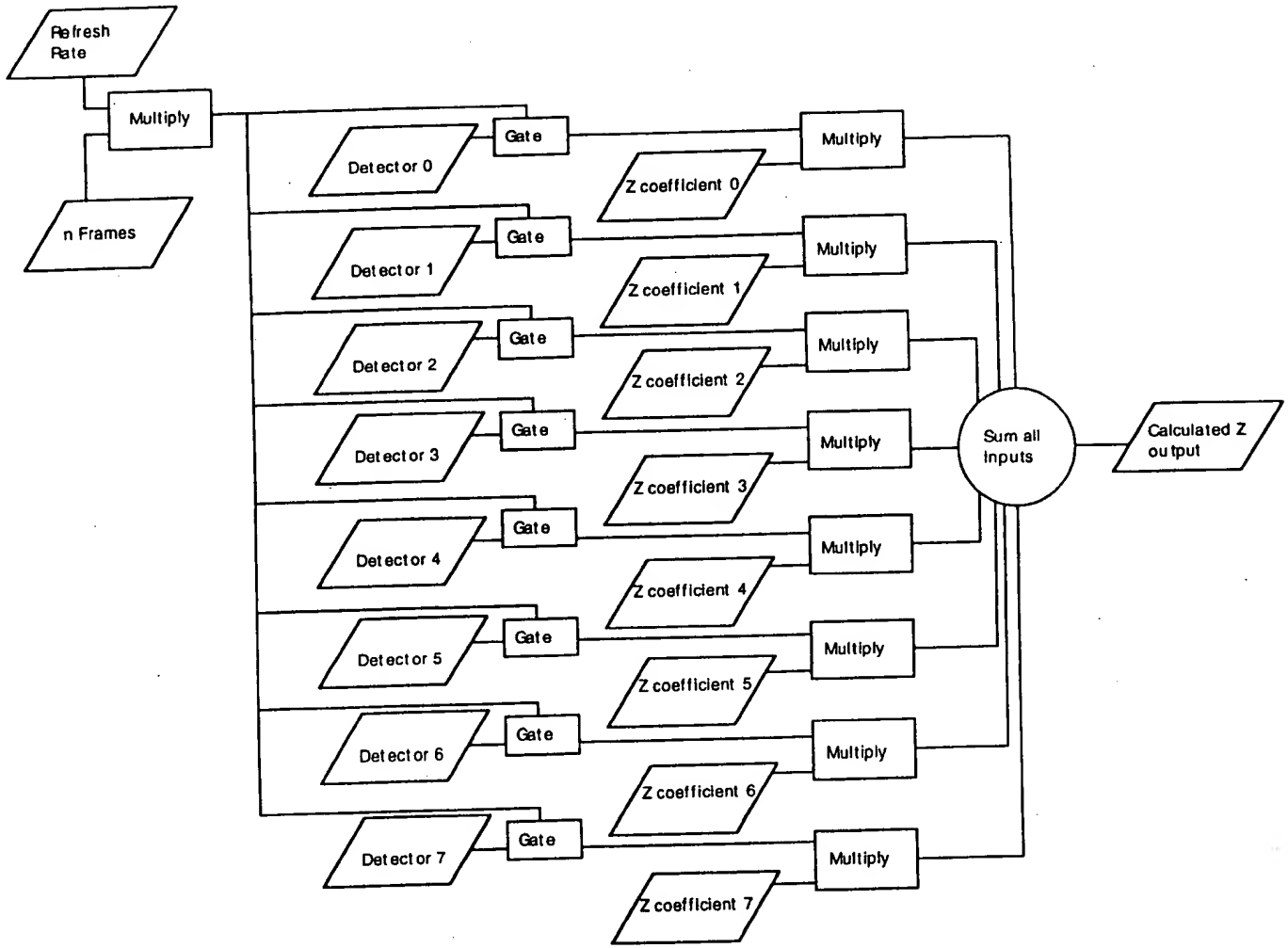
Refresh Rate
Multiply
n Frames
Detector 0
Gate
Multiply
Z coefficient 0
Detector 1
Gate
Multiply
Z coefficient 1
Detector 2
Gate
Multiply
Z coefficient 2
Detector 3
Gate
Multiply
Z coefficient 3
Detector 4
Gate
Multiply
Z coefficient 4
Detector 5
Gate
Multiply
Z coefficient 5
Detector 6
Gate
Multiply
Z coefficient 6
Detector 7
Gate
Multiply
Z coefficient 7
Sum all inputs
Calculated Z output

Fig. 12

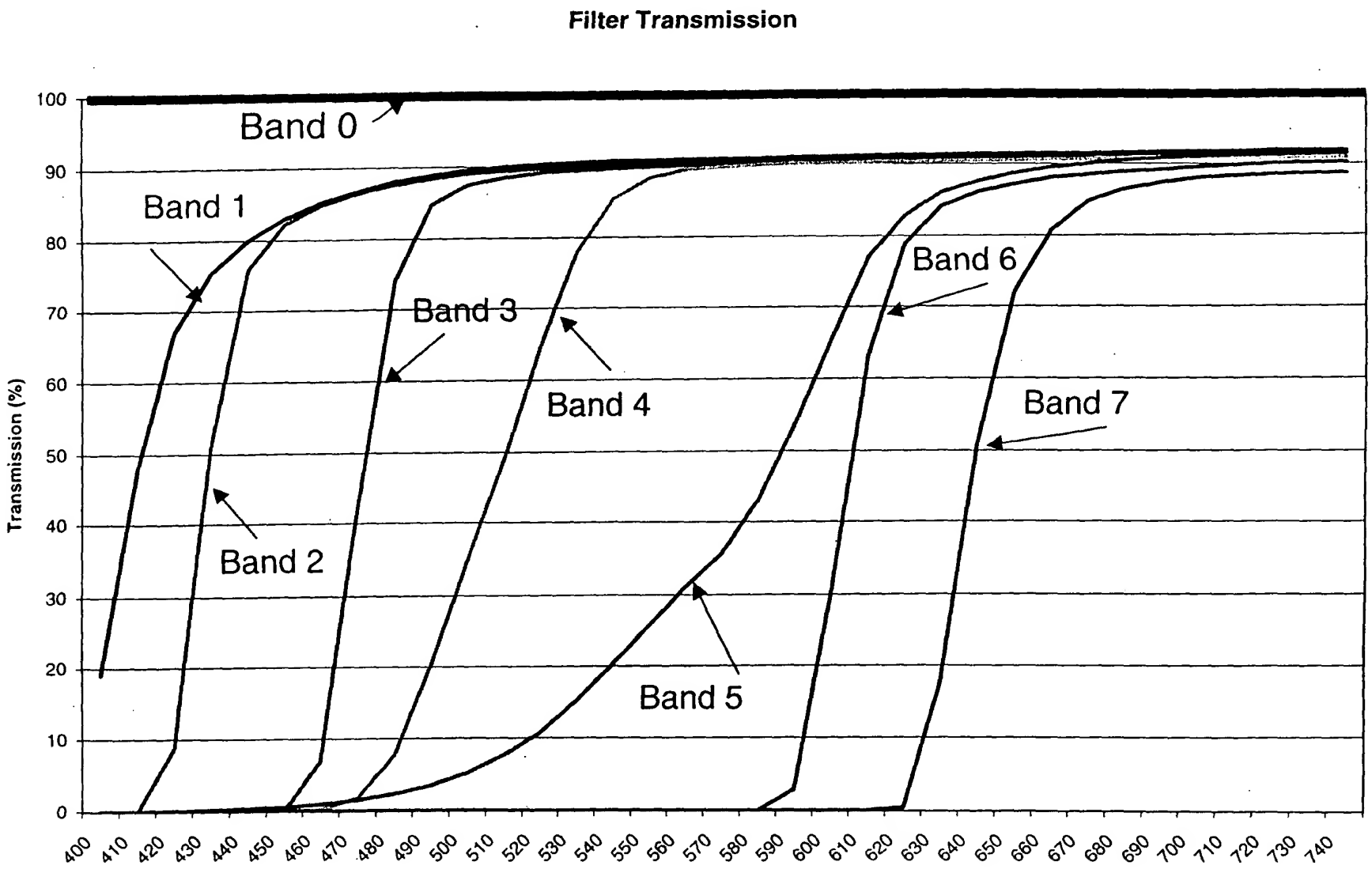
Filter Transmission
Transmission (%)
100
90
80
70
60
50
40
30
20
10
0
400
410
420
430
440
450
460
470
480
490
500
510
520
530
540
550
560
570
580
590
600
610
620
630
640
650
660
670
680
690
700
710
720
730
740
Band 0
Band 1
Band 2
Band 3
Band 4
Band 5
Band 6
Band 7

FIG. 13

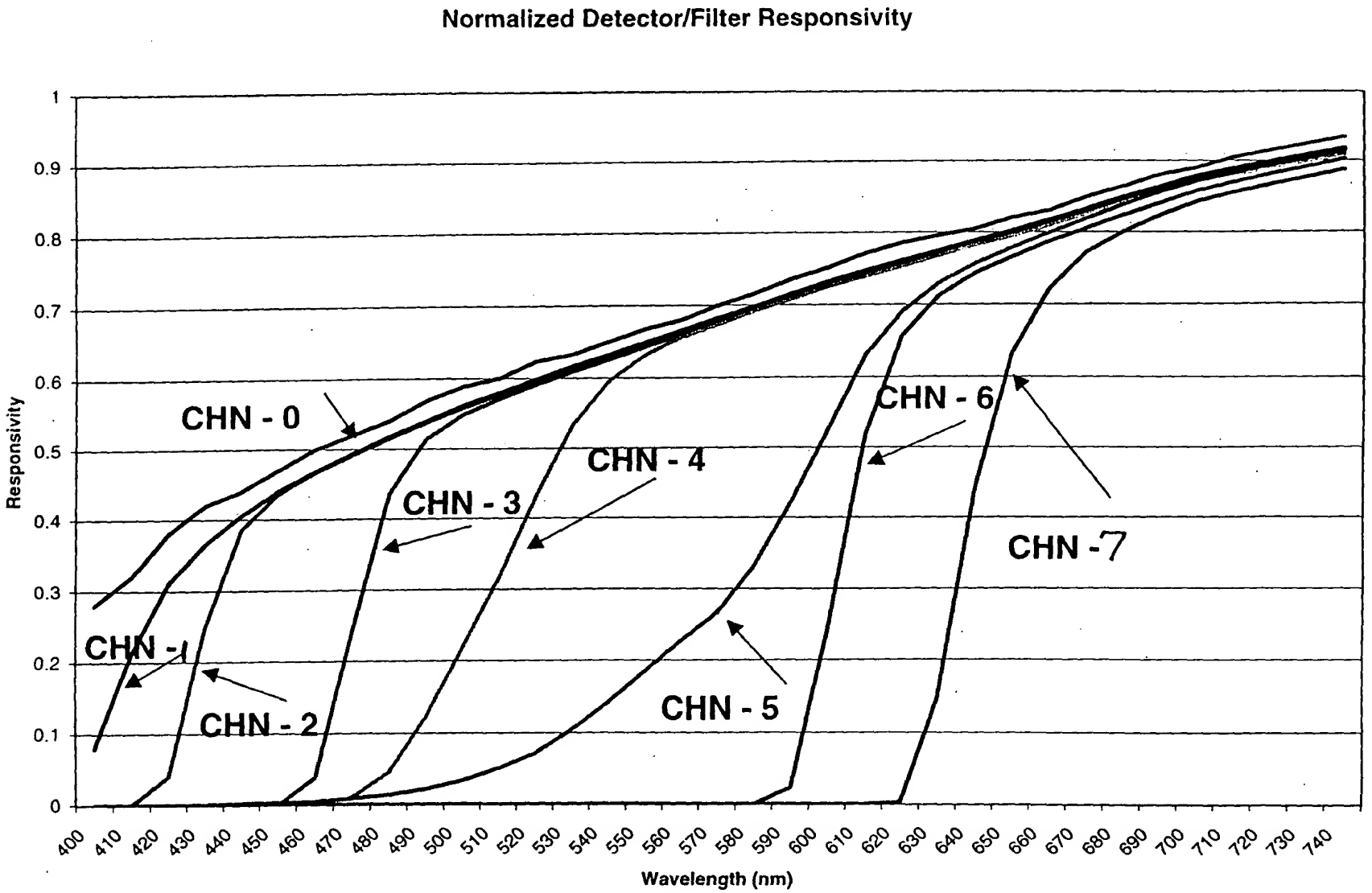
Normalized Detector/Filter Responsivity
Responsivity
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
CHN - 0
CHN - 1
CHN - 2
CHN - 3
CHN - 4
CHN - 5
CHN - 6
CHN -7
400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740
Wavelength (nm)

FIG. 14

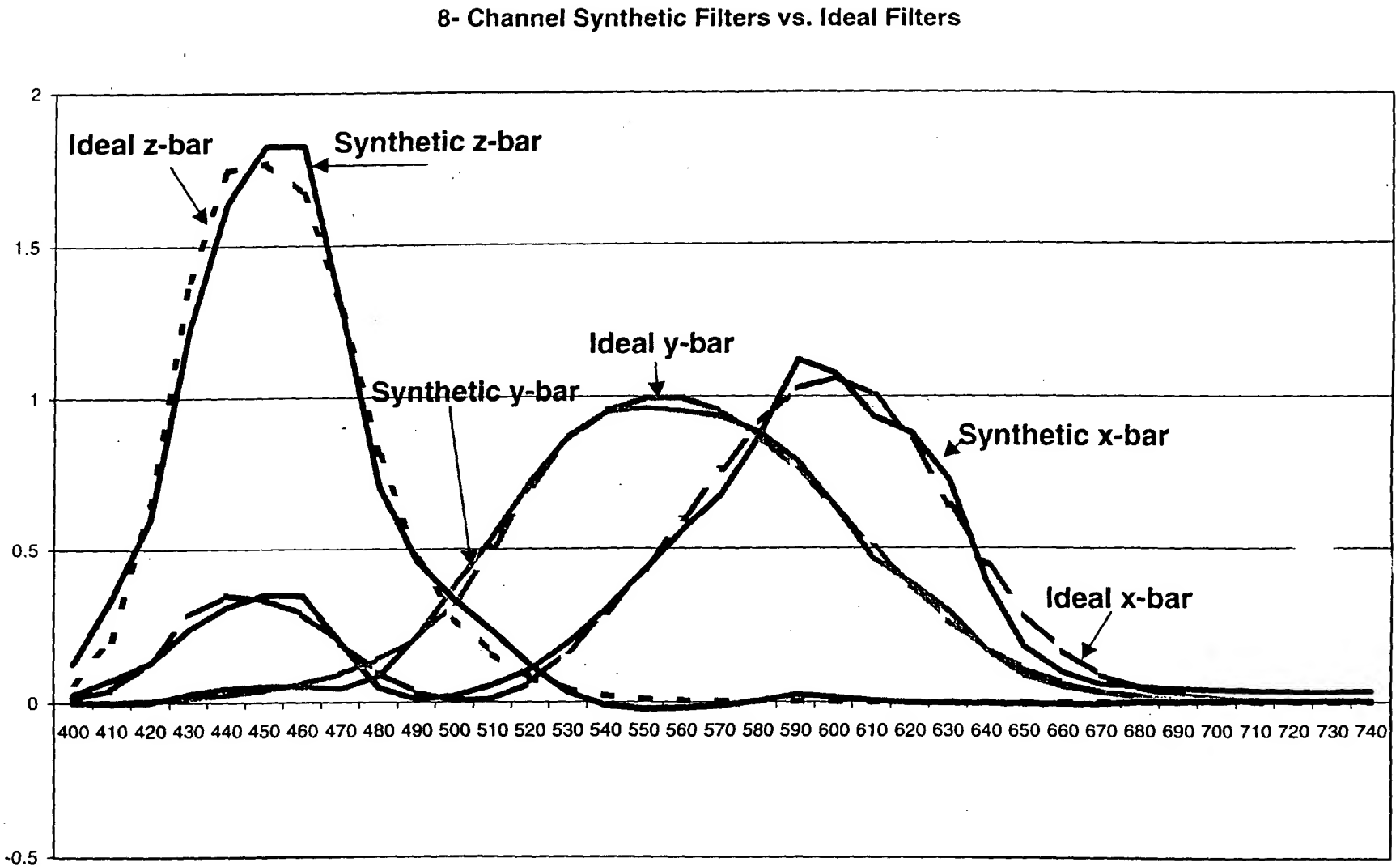
8- Channel Synthetic Filters vs. Ideal Filters
Ideal z-bar
Synthetic z-bar
Ideal y-bar
Synthetic y-bar
Synthetic x-bar
Ideal x-bar
2
1.5
1
0.5
0
-0.5
400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740

FIG. 15

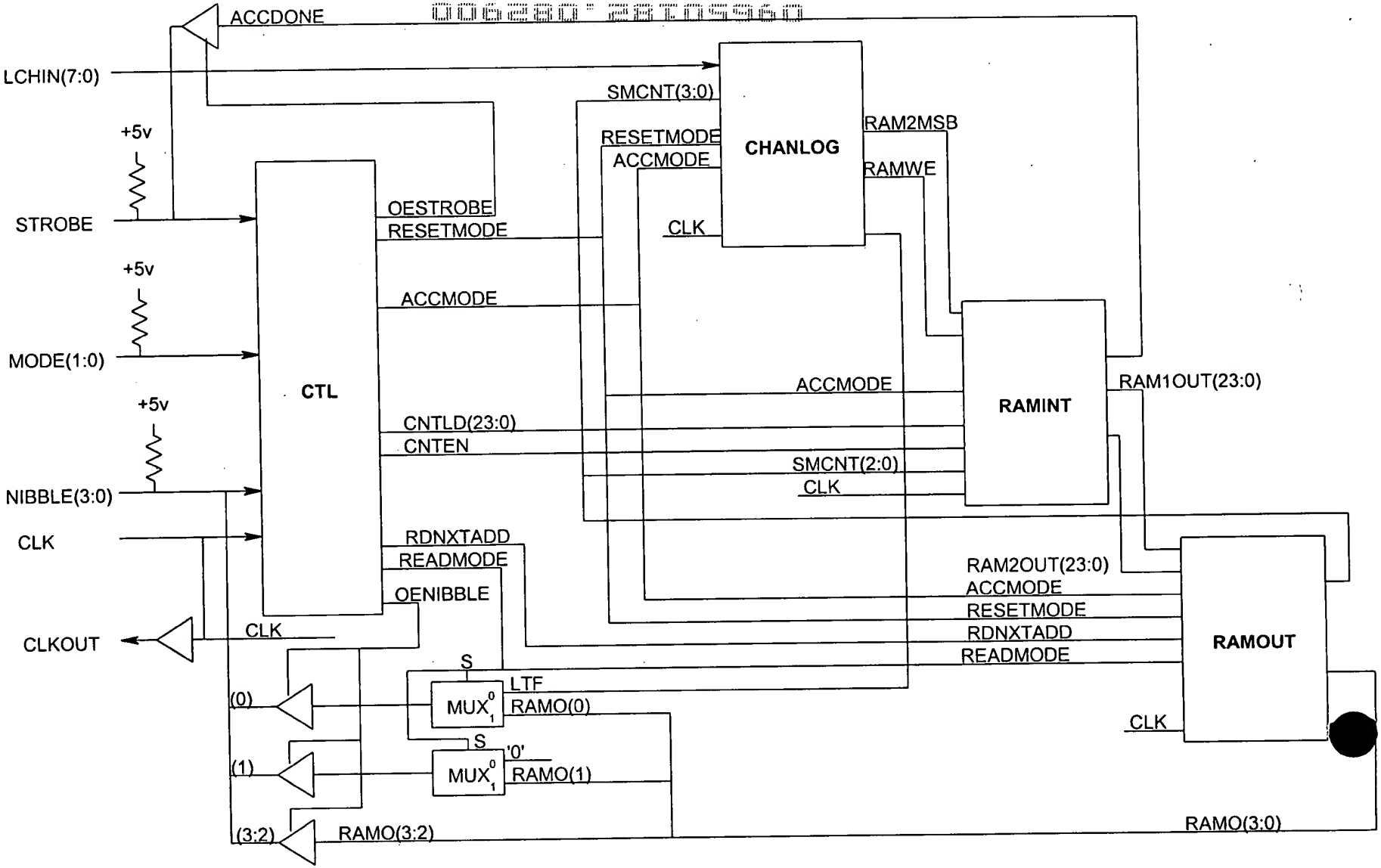
ACCDONE
LCHIN(7:0)
+5v
STROBE
+5v
MODE(1:0)
+5v
NIBBLE(3:0)
CLK
CLKOUT
CTL
OESTROBE
RESETMODE
ACCMODE
CNTLD(23:0)
CNTEN
RDNXTADD
READMODE
OENIBBLE
CLK
S
LTF
(0)
MUX
RAMO(0)
S
'0'
(1)
MUX
RAMO(1)
(3:2)
RAMO(3:2)
SMCNT(3:0)
RESETMODE
ACCMODE
CLK
CHANLOG
RAM2MSB
RAMWE
ACCMODE
CLK
SMCNT(2:0)
RAMINT
RAM1OUT(23:0)
RAM2OUT(23:0)
ACCMODE
RESETMODE
RDNXTADD
READMODE
RAMOUT
CLK
RAMO(3:0)

FIG. 16

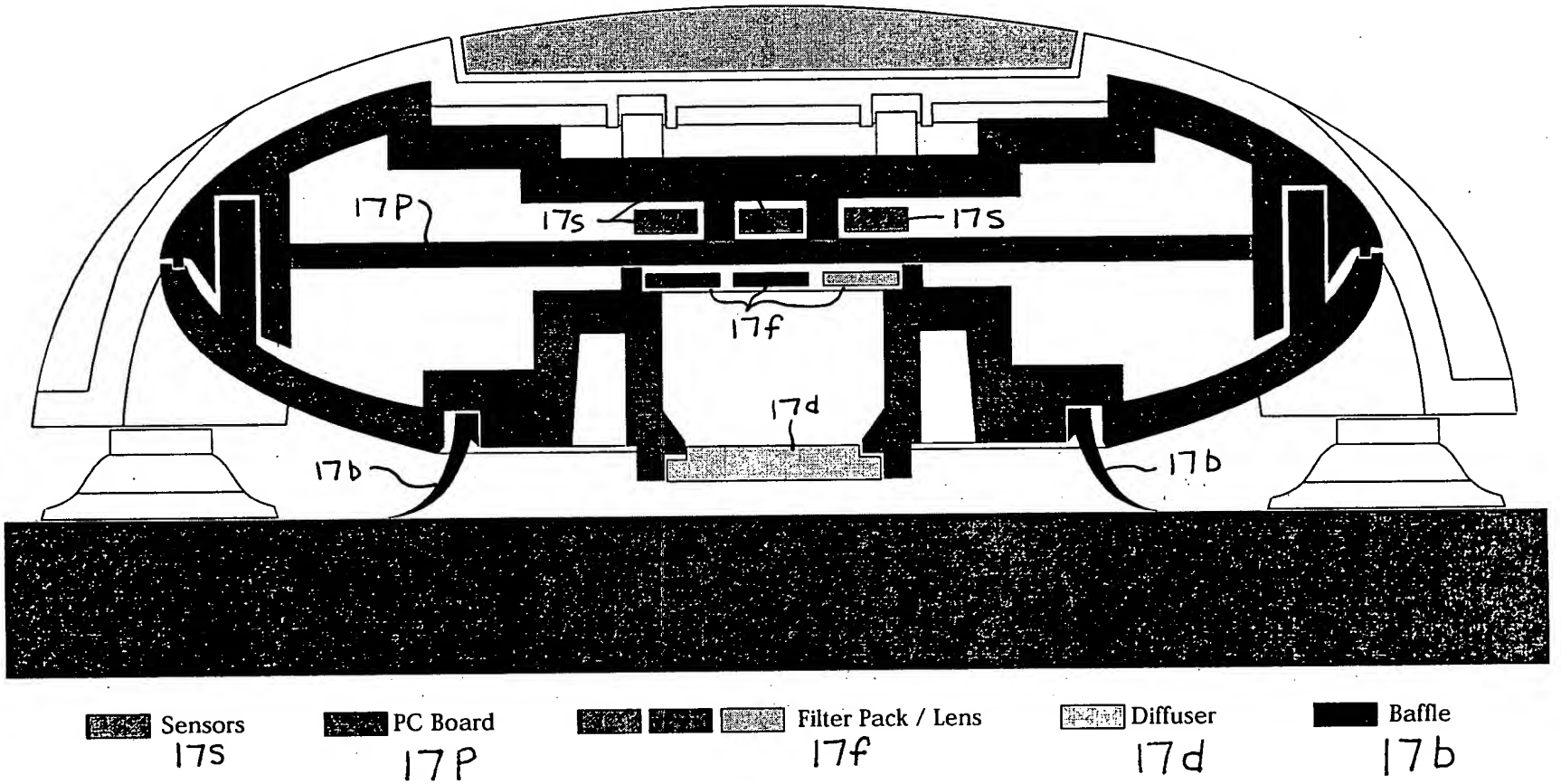
17P
17s
17s
17f
17d
17b
17b
Sensors
17S
PC Board
17P
Filter Pack / Lens
17f
Diffuser
17d
Baffle
17b

FIG. 17